



Putting Research to Work

RD&T E-Newsletter, December 2003

Technical information for state DOT highway professionals

Prepared by CTC & Associates LLC

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Research World

TRB's RiP Database Expands International Content

TRB announced that it has expanded its Research in Progress database to include ongoing transportation research in North, Central and South America, Europe, Australia and Asia. If you're not already familiar with the power of RiP for finding very current transportation research, take a look at <http://rip.trb.org/>.

Nordic Transportation News Published Thrice Yearly – In English

The November 2003 issue of *Nordic Road and Transport Research* reviews recent technology from Denmark, Finland, Iceland, Norway and Sweden. This issue includes articles on lightweight concrete in bridges, road salt options, and modeling programs for evaluation of road use and safety of reconstructed pavements. Courtesy of TRB E-Newsletter: <http://www.vti.se/nordic/>.

Europe Looking at In-Vehicle Communications as Standard Equipment for Cars

The DELTA project led by the Information Society Technologies (IST) in Europe is moving toward making Dedicated Short Range Communications (DSRC) standard in automobiles. According to the project report, having successfully tested a DSRC link that provides traffic and travel information and makes toll payments, the IST-funded DELTA project wants to make the system basic equipment for vehicles. Link to the article at IST: <http://istresults.cordis.lu/index.cfm?section=news&tpl=article&ID=57095>. Courtesy of ITS America News.

Russia Site Links U.S. To Innovations

FHWA's Russia Program was recently established to promote mutually beneficial U.S-Russian partnerships among highway administrations and technical exchange centers. Annual exchanges with Russian transportation engineers and officials have yielded a variety of promising innovations for U.S. transportation agencies, including snow plows that reach behind guardrails, new anti-icing salts, bridge welding and concrete testing methods. See <http://international.fhwa.dot.gov/russia/index.cfm>.

European Web Site Shares Results of Transportation Research

Visitors to the PORTAL (Promotion of Results in Transportation Research and Learning) Web site can download educational materials aimed at accelerating the transfer of European Union research results in local and regional transportation. Downloads are free and include written materials, transparencies, audio and PowerPoint presentations in up to 16 languages. Twenty-four countries are participating in this project, co-funded by the European Commission. Courtesy of Transportation Communications Newsletter: <http://www.eu-portal.net/start.phtml?sprache=en>.

To receive notice of **Putting Research to Work** each month, send e-mail to wisdotresearch@dot.state.wi.us with "Subscribe RD&T E-Newsletter" in the subject field. To discontinue, include "Unsubscribe RD&T E-Newsletter" in the subject field.

Other e-newsletters for transportation professionals:

TRB E-Newsletter from the Transportation Research Board: <http://gulliver.trb.org/news/>.

Transportation Communications Newsletter: <http://groups.yahoo.com/group/transport-communications/>.

CTS Research E-News from the University of Minnesota: <http://www.cts.umn.edu/publications/enews/>.

Designing for the Future

See What Other States Are Doing on AASHTO Design Site

If you haven't visited AASHTO's Subcommittee on Design Web site lately, it's worth another look. The site's Links page is a valuable resource for design professionals, featuring links by state on topics including manuals and specifications, environmental issues, context-sensitive design, working with utilities, contracting, and more. See <http://design.transportation.org/links.html>.

Wyoming Expanding Visualization Use on Major Road Projects

Wyoming DOT is exploring expanding its use of visualizations to help the public understand designs being considered for major road projects, especially those with the potential to be controversial. Visualizations can range from two-dimensional photographic simulations to sophisticated three-dimensional computer animations. Courtesy of Transportation Communications E-Newsletter:

http://wydotweb.state.wy.us/web/news/press_releases/2003/visual/visual.html

Software Helps Surveyors Keep Up With Movements in Earth's Crust

To help surveyors cope with the changes in positional coordinates associated with movement of the earth's crust, the National Oceanic and Atmospheric Administration's National Geodetic Survey has developed the Horizontal Time-Dependent Positioning utility, a software package that has been incorporated into NGS's Geodetic Tool Kit. A tutorial paper describing the fundamentals of the software is available in the November issue of *Professional Surveyor* magazine. Courtesy of the CORS E-Newsletter: <http://www.ngs.noaa.gov/CORS/Articles/HTDPSnayPS.pdf>.

New Publication for Surveyors Set to Launch

Cheves Media LLC has announced plans to publish *The American Surveyor*, a new magazine devoted to all aspects of surveying, mapping, and measurement and positioning. The magazine will publish eight times a year beginning in January 2004 and will include both print and online editions. Read the press release at <http://www.acsm.net/americansurveyor.html>.

Environmental Planning Key in New Florida Toll Road Design

Florida's new Suncoast Parkway is a 42-mile new-alignment toll road that involved careful environmental planning, including preservation of 20,000 acres of conservation land and creation of a bicycle trail that parallels the parkway. Designers divided the proposed highway into six segments that could be designed concurrently by separate consultants, and created a partnership of 14 agencies to address environmental issues. From *Public Roads* magazine:

<http://www.tfhr.gov/pubrds/03sep/01.htm>.

Sidewalk, Bike Path Design Standards Win Safety Award

Montgomery County, Md., has won a National Highway Safety award for its innovative design standards for including sidewalks and off-road bike paths on residential streets and collector roads. The county's designs also significantly reduce runoff and improve water quality at storm drain outfalls. The design standards are available on the county's Web site at <http://engineering.dpwt.com/> (click "Policies and Standards" then "Design Standards").

Link to the county's press release:

<http://montgomerycountymd.gov/Apps/News/press/DisplayInfo.cfm?ItemID=645>.

Lessons in Environmental Justice

The New Orleans Regional Planning Commission (NORPC) undertook a comprehensive effort to include quality of life and environmental justice concerns in planning and designing road projects that affect low-income and minority neighborhoods. A proactive community outreach program included holding meetings in locations that were familiar and accessible to community residents. Read about lessons the NORPC learned in *Public Roads* magazine:

<http://www.tfhr.gov/pubrds/03sep/08.htm>.

Construction and Materials Innovations

Minnesota Explores Mechanistic Properties of Asphalt Mixtures

University of Minnesota researchers used procedures specified in the upcoming AASHTO 2002 *Design Guide* to measure the dynamic and resilient modulus of four standard Mn/DOT asphalt mixtures at a variety of temperatures and frequencies. Experimental modulus curves corresponded well to predicted values in two of the four cases; sample preparation procedures had a significant impact on results. See the full report at <http://www.lrrb.gen.mn.us/PDF/200309.pdf>. Courtesy of University of Minnesota Center for Transportation Studies Research E-News: http://www.cts.umn.edu/publications/enews/2003/05/Enewsv1n5_full.html#asphalt.

Oregon Chooses Concrete Patches With Spreadsheets

The Oregon DOT research Web site recently posted its Concrete Patching Guide, developed in September. Engineers use the guide, an Excel file, by checking boxes answering questions regarding properties of surrounding concrete, substrate conditions, site-specific application techniques, and more. View a report, the questionnaire used to develop the guide, even use the guide yourself at <http://www.odot.state.or.us/tddresearch/reports.htm>.

California Finds High-Capacity Piles Better, Cheaper, Easier

TRB posted a Research Pays Off report on high-capacity piles on California's Santa Clara River. The piles have performed very well to load testing, and construction proved faster and \$14 million cheaper than with their conventional cousins. Courtesy of Transportation Communications E-Newsletter: <http://trb.org/publications/trnews/trnews228rpo.pdf>.

New Distress Identification Manual Released

According to the November *Focus*, the FHWA just released its 4th edition of the *Distress Identification Manual for the Long-Term Pavement Performance Program*. The manual organizes its photos and description into sections for asphalt concrete, jointed concrete, and continuously reinforced concrete pavements. Appendixes address distress surveys and faultmeter use. The entire manual can be read at <http://www.fhrc.gov/pavement/ltp/reports/03031/index.htm>.

CD Offers Quick, Technical Look At Hoosier Superpave

According to the early November issue of FHWA's *Technology Talks*, the Asphalt Pavement Association of Indiana has released an interactive CD-ROM on the Indiana adaptation of Superpave containing specifications, selection of binders, sample paving, and more. Order the CD off the APAI page: <http://www.ind-asphalt.com/Technical.htm>.

AVA Revisited: Kansas Shows Use Of AVA, Compares To Rival Methods

AASHTO added in November some new information to its Air Void Analyzer Web page. A video and slideshow version of a Kansas presentation shows distresses related to concrete pavement air void problems, offers graphs and statistics on air void spacing, shows how AVAs are used and how AVA results correlate well with ASTM C 457, and more. See http://www.aashtotig.org/focus_technologies/ava/.

Glassphalt – Is It Coming?

A Nov. 17 article in the *Arizona Daily Star* reported that a construction materials supplier in Tucson provides the city's transportation department with glassphalt – an asphalt mix using recycled glass. The material doesn't save money, but it doesn't lose it, either, and it provides another outlet for recycling, as an alternative to landfilling. Currently, the city uses asphalt only in driveways and parking lots, but Pima County may use it on residential roads. http://story.news.yahoo.com/news?tmpl=story&u=azstar/20031117/lo_azstar/tucsontospinglassintoasphalt.

Operating/Optimizing the System

National Center for Pavement Preservation Opens in Michigan

The National Center for Pavement Preservation opened at Michigan State University in October 2003. Founded by MSU, the Foundation for Pavement Preservation and the Federal Highway Administration, the center will lead and coordinate efforts among government, industry and academia to advance pavement preservation, provide hands-on technical assistance and meet training and education needs. Link to the *Focus* article: <http://www.tfhr.gov/focus/nov03/01.htm>

Pavement Preservation Featured in TR News

The September-October *TR News* offers several informative articles on the pavement preservation movement. National Center Director Larry Galehouse and co-authors discuss the principles of pavement preservation, benefits and barriers. Other articles review specific money-saving approaches states have adopted for maintenance of highways and bridges. See <http://gulliver.trb.org/publications/trnews/trnews228.pdf>.

Rural Incident Management Program Results in Savings

In 1995, the Oregon DOT initiated one of the first documented incident management programs in the rural United States. To quantify the benefits of this program in 2001, ODOT studied two corridors covered by the program, identifying an annual return on the program in terms of agency savings and user delay and fuel savings of at least \$250,000 for each corridor. From the September/October *Public Roads*: <http://www.tfhr.gov/pubrds/03sep/03.htm>.
Courtesy of Transportation Communications Newsletter.

Rumble Strips Reduce Runoff Crashes

A recent Michigan study found that a 40 to 80 percent reduction in drift-off crashes is possible with proper design and installation of rumble strips. The study discusses the causes of drift-off, provides rumble strip comparisons, investigates the painting and placement of rumble strips, and more. Link to the *Public Roads* article: <http://www.tfhr.gov/pubrds/03sep/06.htm>.
Courtesy of Transportation Communications Newsletter.

State Practices for Safer Winter Maintenance

Make your snowplows stand out and stay safe. From retroreflective strips to amber warning lights, the Iowa State University Center for Transportation and Education documented what state DOTs are currently using in their moving work zones through two surveys. Link to the article in October 2003 *Better Roads*: <http://www.betterroads.com/articles/oct03c.htm>

FHWA Launches Web Site for Freight Professional Development

According to FHWA Administrator Mary E. Peters, U.S. freight volumes are expected to grow by 70 percent by 2020. The FHWA's new Freight Professional Development Program Web site will provide needed training and technical assistance to freight transportation and planning professionals gearing up to handle this demand. The site includes a searchable freight resource library and a peer exchange listserv for sharing best practices. Link to the site: <http://www.ops.fhwa.dot.gov/freight/fpd/>

Street Sweeper Uses Vacuum Technology to Reduce

The Centurion mechanical street sweeper is described in the October 2003 *Better Roads*. It uses a vacuum to control dust and has a computerized touch screen with pre-set sweeping modes and winter sweeping capabilities. It may help states respond to tougher air quality rules. See the story at: <http://www.betterroads.com/articles/oct03a.htm> Also see WisDOT's research project, *Pollutant Loadings to Stormwater Run-Off from Highways: The Impact of a Sweeping Program*, which showed that the Schwarze Industries high efficiency sweeper has potential for removing freeway runoff pollutants and meeting new stormwater regulations. See final report at <http://www.dot.wisconsin.gov/library/research/reports/environment.htm>.

Safe Travel/Smart Travel

Virginia DOT Launches Enhanced 511 Site

Virginia's 511 Travel Information Service Web site at <http://511virginia.org/> has been redesigned to provide enhanced real-time travel information and traveler services. The focal point of the home page is an interactive map with a legend that lets viewers turn on or off features that report incidents, road work and driving conditions, and provide roadway camera views. Drivers will soon be able to receive email notification about new incidents or road alerts being posted at the site.

Link to story from ITS America News:

<http://www.itsa.org/ITSNEWS.NSF/4e0650bef6193b3e852562350056a3a7/a406ad811fae7ac685256de200469b6d?OpenDocument>.

ITS Moves 'Em Along In Los Angeles

Studies at seven of LA's 2,500 adaptive signal-controlled intersections found delay reduced by an average of 10 percent, with reductions ranging to 17.7 percent. The benefits of adaptive signal control were greatest for two-phase intersections having exclusive turning lanes, and/or unbalanced critical volumes. Link to the report summary at

<http://www.benefitcost.its.dot.gov/ITS/benecost.nsf/ByLink/BOTM-November2003>. Courtesy of the ICDN Newsletter.

High Tech T-Rex

Colorado's multimodal T-REX Project encompasses many novel ITS elements including 1) strategic deployment of ITS technologies during the project's main deployment phase to help minimize driver inconvenience and 2) a "design-build" contract for the ITS elements that gives the prime contractor more latitude to make specific technology decisions and more accountability.

Link to an update from CDOT's Gary Gonzales, the project's Traffic and ITS Manager, at

http://www.nawgits.com/icdn/trex_its.html. Courtesy of the ICDN Newsletter.

Path Modeling and Evaluation Group Launches Web Site

The MEG group at California's Partners for Advanced Transit and Highways focuses on modeling and evaluating a variety of intelligent transportation systems. The new Web site provides descriptions of the group's tools and frameworks and access to detailed information on ITS systems for bus rapid transit, automated highways, intersection decision support, threat assessment visualization, and more. Link to the site at: <http://path.berkeley.edu/MEG/>.

Testing PCS Data for Traffic Control Systems

The purpose of this project is to test the use of next generation wireless digital PCS (personal communication service) services, verify if they can support the communications requirements necessary for urban traffic control systems utilizing both NEMA and non-NEMA controllers and document the technical findings. This is one of a number of projects supported by the ENTERPRISE Program pooled fund. See details at <http://enterprise.prog.org/current/pcs.htm>.

New Brunswick DOT Embracing ITS

New Brunswick has become a leader in Atlantic Canada in the use and promotion of ITS. The New Brunswick Department of Transportation has developed a new ITS section on its Web site that includes reports on ITS project developments in the province. Visit the site at

<http://www.gnb.ca/0113/ITS/ITS-e.asp>. Courtesy of the ITS Canada Newsletter.

Salt Lake City Olympics ITS Reports Available

Assessments of the traffic management and traveler information ITS elements put in place for the 2002 Winter Olympic Games in Salt Lake City have been made available by FHWA. Link to Event Study: Traffic Management and Traveler Information at

http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13850.html. Courtesy of ITS America News.